Catalogue no. 82-003-X
ISSN 1209-1367

Health Reports

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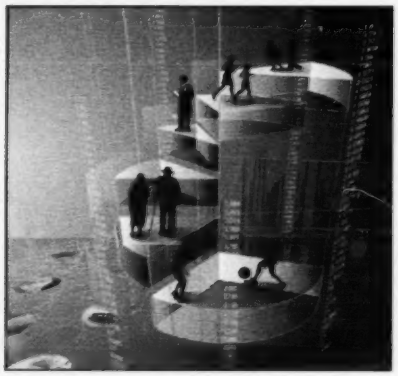

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Release date: August 17, 2016

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Acute care hospitalization by Aboriginal identity, Canada, 2006 through 2008

by Gisèle Carrière, Evelyne Bougie, Dafna Kohen, Michelle Rotermann and Claudia Sanmartin

Abstract

Background: National data about acute care hospitalization of Aboriginal people are scarce. This study addresses that information gap by describing patterns of hospitalization by Aboriginal identity for leading diagnoses for all provinces and territories except Quebec.

Data and methods: The 2006 Census was linked to the 2006/2007-to-2008/2009 Discharge Abstract Database, which contains hospital records from all acute care facilities in Canada (excluding Quebec). With these linked data, hospital records could be examined by Aboriginal identity, as reported to the census. Hospitalizations were grouped by International Classification of Diseases (ICD-10) chapters based on "the most responsible diagnosis." Age-standardized hospitalization rates were calculated per 100,000 population, and rate ratios (RR) were calculated for Aboriginal groups relative to non-Aboriginal people.

Results: Hospitalization rates were almost invariably higher for First Nations living on and off reserve, Métis, and Inuit living in Inuit Nunangat than for the non-Aboriginal population, regardless of ICD diagnostic chapter. The ranking of age-standardized hospitalization rates by frequency of diagnoses varied slightly by Aboriginal identity. RRs were highest among First Nations living on reserve, especially for endocrine, nutritional and metabolic diseases (RR = 4.9), mental and behavioural disorders (RR = 3.6), diseases of the respiratory system (RR = 3.3), and injuries (RR = 3.2). As well, the rate for endocrine, nutritional and metabolic diseases was high among First Nations living off reserve (RR = 2.7). RRs were also high among Inuit for mental and behavioural disorders (RR = 3.3) and for diseases of the respiratory system (RR = 2.7).

Interpretation: Hospitalization rates varied by Aboriginal identity, and were consistent with recognized health disparities between Aboriginal and non-Aboriginal people. Because many factors besides health affect hospital use, further research is required to understand differences in hospital use by Aboriginal identity. These national data are relevant to health policy formulation and service delivery planning.

Key words: Administrative data, census, data linkage, First Nations, health care, hospital records, Inuit, medical record linkage, Métis, on reserve

Differences in health, health determinants, and use of health care services between Aboriginal and non-Aboriginal people[1-20] suggest that the frequency and nature of acute care hospitalization may vary. However, national information about hospital admissions of Aboriginal people is scarce. In some provinces—Manitoba, British Columbia, Alberta, and Saskatchewan—hospital records contain First Nations identifiers,[1-2] or were appended for Métis persons.[3] In other jurisdictions, Aboriginal identity is not routinely included on hospital records. As a result, national-level data about the hospitalization of Aboriginal people are not available.

Researchers have attempted to address this data gap by estimating hospital use by people in areas with higher versus lower percentages of Aboriginal identity residents.[21,22] However, because area-based data are subject to misclassification,[23] individual-level information is preferable.

This study is based on 2006 Census (long-form) socio-demographic information (including Aboriginal identity) that was linked to the Discharge Abstract Database to create a sample for analysis for all provinces and territories except Quebec. The primary purpose is to provide national figures (excluding Quebec) on acute care hospitalizations of Aboriginal (First Nations living on and off reserve, Métis, Inuit in Inuit Nunangat) and non-Aboriginal people. A secondary objective is to identify the leading diagnostic categories (chapters) of acute care hospitalizations, based on the "most responsible diagnosis."

Methods

Data sources

Data from the 2006 Census[24] were linked to the Canadian Institute for Health Information's Discharge Abstract Database (DAD) from 2006/2007 through 2008/2009 for nine provinces (excluding Quebec) and the three territories. The complete census file (excluding Quebec), which contains approximately 23.4 million records, was used for record linkage to the DAD.[25]

Each year, the DAD consolidates about 3 million hospital records from all acute care facilities, and some psychiatric, chronic rehabilitation, and day surgery facilities in Canada,[26-28] except Quebec. Because of the exclusion of Quebec, residents of that province (including Inuit in Nunavik) are not represented in the linked data, nor are hospitalizations in Quebec of residents of other provinces and territories.

Hierarchical deterministic linkage was conducted, based on common identifiers recorded in both the census and the DAD: date of birth, sex, and residential postal code. A validation study concluded that the linked file is suitable for health-related research and is broadly representative of the population of Canada.[25]

An important limitation is the low rate of census coverage and eligibility to link among individuals who identified as Aboriginal.[25] Lower coverage means that Aboriginal people were more likely to be underrepresented in the linked census. Records with lower eligibility for linkage were those lacking sufficient

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information for a linkage attempt.[25] The likely impact is underestimation of hospitalization rates of Aboriginal people and a possible downward bias compared with estimates for non-Aboriginal people.

Linkage was performed in accordance with the Directive on Record Linkage[29] and approved by Statistics Canada's Executive Management Committee.[30] Details about the linkage methodology are available elsewhere.[25]

Long-form census respondents, who represent about 20% of the non-institutional population, provided socio-demographic data, including Aboriginal identity.[24] All households in Nunavut, Northwest Territories (excluding Yellowknife), Yukon (excluding Whitehorse), and all Indian reserves and settlements were asked to complete the long-form questionnaire.

The final census cohort eligible for linkage to the DAD consisted of 4.65 million long-form respondents, to whom 1,028,604 acute care hospitalizations were linked during the 2006/2007-to-2008/2009 period. According to a validation study of the linked file, 7.2% to 7.7% of Aboriginal people linked to at least one hospitalization record during this period. The corresponding figures for First Nations were somewhat higher: 7.6% to 8.1%. From 5.0% to 5.4% of non-Aboriginal people linked to at least one hospitalization.[25]

Appendix Table A contains unweighted counts for the 2006 Census–DAD linked study cohort.

Aboriginal identity

The 2006 Census question on Aboriginal identity was: "Is this person an Aboriginal person, that is, North American Indian, Métis, or Inuit (Eskimo)?" Respondents marked all that applied. Answers were classified as: North American Indian (only), Métis (only), Inuit (only), other Aboriginal (multiple or indeterminate), or non-Aboriginal. The analysis includes only single-identity Aboriginal respondents; about 3% of census respondents reporting other Aboriginal (multiple or indeterminate) identities[31] were excluded.

Geographical location of census respondents was used to identify Inuit living in Inuit Nunangat and First Nations living on reserve (Indian reserves or settlements) or off reserve. Inuit estimates are provided only for those in Inuit Nunangat, the four Inuit land claim regions—Nunatsiavut (northern coastal Labrador), Nunavik (northern Quebec), Nunavut, and Inuvialuit—which together represent 78% of the total Inuit population. Inuit counts for this analysis exclude Nunavik because hospital discharges for Quebec were not available. As a result, 9,565 Inuit (19% of the total Inuit population)[9] were excluded.

The 2006 Census on-reserve population includes all residents in any of eight census subdivision (CSD) types legally affiliated with First Nations Indian bands, as well as other types of CSDs in northern Saskatchewan, the Northwest Territories, and the Yukon that have large concentrations of First Nations people. "On reserve" comprises legally defined Indian reserves, Indian settlements, other land types created by the ratification of Self-Government Agreements, and other northern communities affiliated with First Nations according to criteria established by Indigenous and Northern Affairs Canada.

This analysis pertains to First Nations living on reserve, First Nations living off reserve, Métis living off reserve, Inuit in Inuit Nunangat (excluding Nunavik in Quebec), and the non-Aboriginal population. Throughout the remainder of this report, "Aboriginal" refers to members of these four Aboriginal groups; "Inuit" refers to Inuit in Inuit Nunangat excluding Nunavik; and "Métis" refers only to Métis persons who were not residing on reserves.

Hospitalization

The frequency of hospitalizations based on the most responsible diagnosis was compiled for each Aboriginal identity group and for non-Aboriginal people. Individuals could be represented more than once if they were hospitalized multiple times during the 2006/2007-to-2008/2009 period.

Acute care DAD hospital discharge records linking to eligible long-form census respondents were classified based on the person's census-based Aboriginal identity and geographic location rather than the province that submitted the hospital record. This enabled reporting of hospitalizations in a province different from the respondent's province of residence at the time of the 2006 Census.

Most responsible diagnosis

Each hospital discharge record contains up to 25 diagnoses and 20 intervention codes based on the *International Statistical Classification of Diseases and Related Health Problems, 10th Revision, Canada* (ICD-10-CA).[32] The "most responsible diagnosis," which refers to the most significant diagnosed condition and/or accounts for the greatest length of stay, was used to sort hospital records into chapters pertaining to specific diseases or injuries, etiology of the disease, conditions specific to body systems, or to conditions and situations that are risk factors to health.[33] The first three characters of each most responsible diagnosis were used to classify hospitalizations by chapter (Appendix Table B).

A frequency ranking procedure was applied to all in-scope linked census–DAD records to determine the most common diagnoses. The highest-ranking chapter codes, in addition to hospitalizations for all chapters combined, with and without pregnancy and child-birth-related hospitalizations, were selected to calculate hospitalization rates for each Aboriginal identity group and for non-Aboriginal people.

Analytical techniques

Age-standardized hospitalization rates (ASHRs) per 100,000 population, rate ratios (RRs), and 95% confidence intervals were calculated by Aboriginal identity group. To reduce the variation that can occur with small numbers, hospital discharge records for the three fiscal years linked to 2006 Census long-form respondents were combined to compile acute care hospitalizations.

ASHRs used the sum of linked hospitalizations for a given Aboriginal identity group as numerators, divided by the denominator—unweighted person counts from the Census study cohort for the same identity group, multiplied by three (number of DAD years). Age standardization used the direct method, based on the age structure of the national Aboriginal population from the 2006 Census. The following age groups were used: 0 to 9; 10 to 19; 20 to 29; 30 to 39; 40 to 49; and 50 or older.

Age-standardized 95% confidence intervals for the ASHRs and RRs were derived with the Spiegelman method.[34] The non-Aboriginal population is the reference for RRs.

Results

All-cause hospitalizations

ASHRs for all-cause acute care hospitalizations were consistently higher among Aboriginal people than among non-Aboriginal people (Tables 1 and 2). For First Nations people living on reserve, the ASHR was 2.6 times that of the non-Aboriginal population (17,042 versus 6,459 per 100,000 population). ASHRs were somewhat lower among First Nations living off reserve (11,190) and Métis (9,535), but still well above those of the non-Aboriginal population (RRs = 1.7 and 1.5, respectively). Among Inuit, the ASHR for all-cause hospitalizations was twice (13,227) that of non-Aboriginal people. Even when pregnancy- and childbirth-related hospital discharges were excluded, patterns were similar.

Leading causes

For First Nations people living on reserve, the highest ASHR was for conditions related to "pregnancy, childbirth, and the puerperium" (Table 1). "Diseases of the digestive system" ranked a distant second, followed by "injuries, poisoning, and other consequences of external causes," "diseases of the respiratory system," and "diseases of the circulatory system." "Mental and behavioural disorders" and "endocrine, nutritional, and metabolic diseases" had the sixth and seventh highest ASHRs among First Nations living on reserve.

Because the rank order of leading causes varied slightly by Aboriginal identity, the order of high RRs did as well. The causes with the highest RRs for First Nations living on reserve were "endocrine, nutritional, and metabolic diseases" (RR = 4.9), "mental and behavioural disorders" (RR = 3.6), "diseases of the respiratory system" (RR = 3.3), and "injuries, poisoning and other consequences of external causes" (RR = 3.2) (Table 2, Figure 1). In addition, ASHRs for "pregnancy, childbirth and the puerperium" and for "diseases of the digestive system" were more than twice those of non-Aboriginal people.

For First Nations people living off reserve, ranking of ASHRs yielded the same leading causes of acute care hospitalization as for First Nations living on reserve. The highest RRs among First Nations living off reserve were for "mental and behavioural disor-

Table 1
Age-standardized† acute care hospitalization rates (ASHRs) per 100,000 population, by Aboriginal identity and cause, 2006 Census–Discharge Abstract Database study cohort, Canada excluding Quebec, 2006/2007 through 2008/2009

	First Nations living on reserve			First Nations living off reserve			Métis			Inuit in Inuit Nunangat, excluding Nunavik			Non-Aboriginal population		
		95% confidence interval			95% confidence interval			95% confidence interval			95% confidence interval			95% confidence interval	
Cause	ASHR	from	to	ASHR	from	to	ASHR	from	to	ASHR	from	to	ASHR	from	to
All causes combined (births included)	17,042	16,901	17,183	11,190	11,005	11,379	9,535	9,360	9,713	13,227	12,865	13,598	6,459	6,440	6,479
All causes combined (births excluded)	10,766	10,687	10,846	7,373	7,262	7,486	6,474	6,372	6,577	7,681	7,480	7,888	4,306	4,295	4,317
Pregnancy, childbirth and the puerperium‡	5,214	5,138	5,292	3,149	3,051	3,251	2,800	2,705	2,899	4,547	4,352	4,751	2,128	2,116	2,140
Diseases of the digestive system	1,525	1,495	1,555	1,015	974	1,057	928	890	967	1,073	998	1,153	590	586	594
Injuries	1,460	1,431	1,489	957	918	998	753	719	790	1,169	1,095	1,248	460	456	464
Diseases of the respiratory system	1,282	1,256	1,310	830	793	868	719	685	755	1,044	971	1,123	388	384	391
Diseases of the circulatory system	991	967	1,016	712	678	749	701	669	734	583	526	646	543	540	546
Mental and behavioural disorders	692	672	712	520	492	551	410	384	437	630	578	688	191	189	194
Endocrine, nutritional and metabolic diseases	603	584	622	327	304	351	259	240	280	75	57	100	122	121	124
Diseases of the genitourinary system	584	566	603	475	447	504	445	419	472	354	312	401	310	308	313
Diseases of the musculoskeletal system and connective tissue	395	380	411	357	333	382	355	332	379	313	273	359	290	288	293

† standardized to Aboriginal population age structure based on 2006 Census
‡ females only
Source: Linked 2006 Census–2006/2007-to-2008/2009 Discharge Abstract Database.

ders" (RR = 2.7) and for "endocrine, nutritional, and metabolic disorders" (RR = 2.7). As well, RRs indicating ASHRS at least double those of the non-Aboriginal population were found for "injuries, poisoning and other consequence of external causes" (RR = 2.1) and "diseases of the respiratory system" (RR = 2.1).

Among Métis, the rank order of ASHRS for the leading causes was the same as for First Nations people. And for all leading causes, RRs showed that ASHRs were elevated among Métis relative to non-Aboriginal people. The highest RRs were for "mental and behavioural disorders" (RR = 2.1), "endocrine, nutritional and metabolic disorders" (RR = 2.1), and "diseases of the respiratory system" (RR = 1.9).

Among Inuit, the leading causes of hospitalization were the same as those for other Aboriginal identity groups, but the order of ASHRs (aside from birth-related, which ranked first) was different. Hospitalizations due to "injuries, poisoning and other consequences of external causes" ranked second, followed by "diseases of the digestive system" and "diseases of the respiratory system." Relative to the non-Aboriginal population, the highest RR among Inuit was for causes relating to "mental and behavioural disorders" (RR = 3.3). RRs for hospitalizations due to "diseases of the respiratory system" and "injuries, poisoning and other consequences of external causes" indicated ASHRs about two and a half times those of non-Aboriginal people (RR = 2.7 and RR = 2.5, respectively).

Discussion

Results from the 2006 Census–DAD linkage reveal that the leading causes of acute care hospitalization were the same for First Nations, Métis, Inuit, and the non-Aboriginal population. However, ASHRs among Aboriginal people were almost invariably higher than (often double or triple) those of the non-Aboriginal population. After the leading cause of hospitalization (pregnancy-related), the rank order of the most frequent causes of hospitalization varied somewhat across Aboriginal identity groups. This emphasizes the importance of examining hospitalization separately for First Nations people living on and off reserve, Métis, and Inuit.

The results are consistent with provincial patterns of hospitalization rates for First Nations in Western Canada,[2] particularly for injuries, diseases of the digestive system, and diseases of the respiratory system. Results are also consistent with rates for Registered First Nations in Manitoba,[1] Métis with diabetes in Ontario,[35] and Inuit children with lower respiratory tract infections.[36,37] In addition, the findings are similar to those of area-based[18,19] and person-level[13-16] studies of premature mortality. Elevated ASHRs that resulted among Inuit for "injuries, poisoning and other consequence of external causes" and for "diseases of the respiratory system" were anticipated based on previous area-based hospitalization and person-level mortality analyses.[9,18,22,36,37]

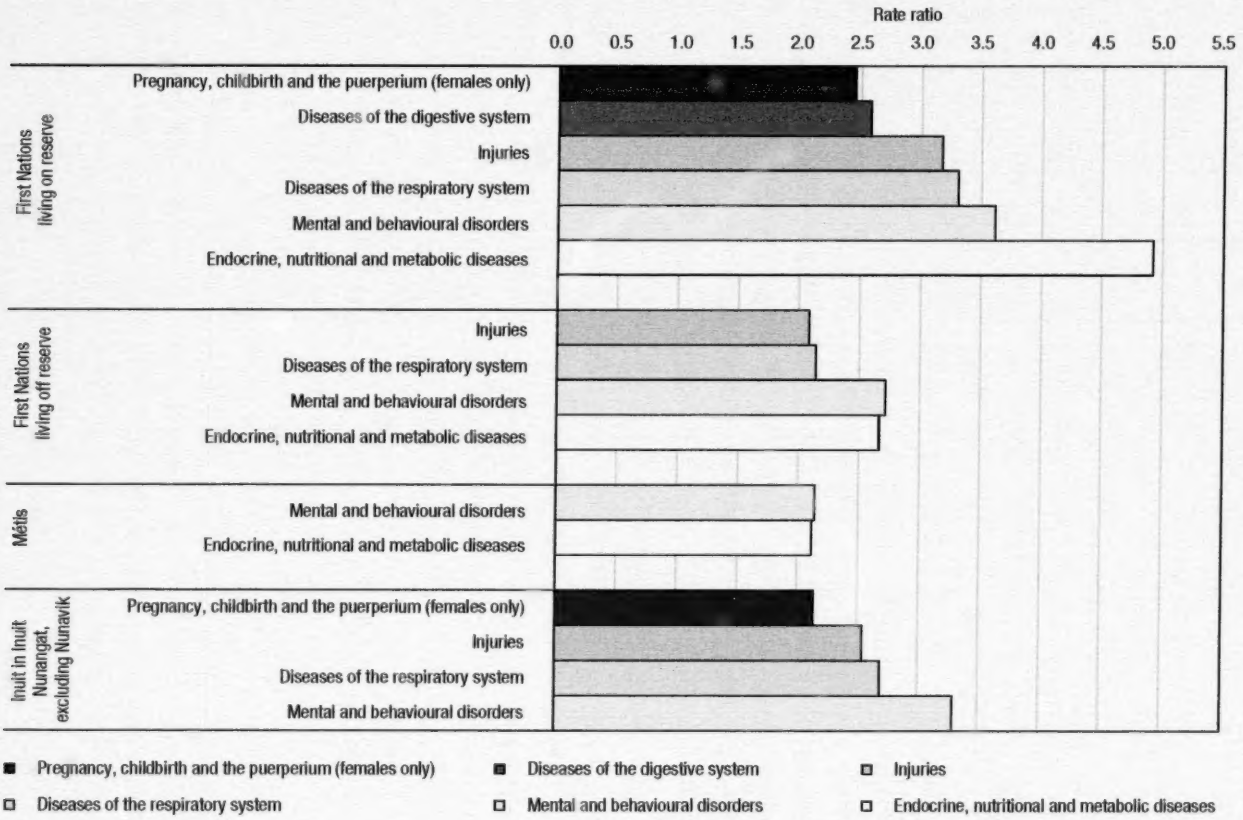
Because rates were age-standardized, the disparities in ASHRs between Aboriginal and non-Aboriginal people are not due to variations in the age structure of the populations. To a considerable extent, high ASHRs reflect the health

Table 2
Rate ratios (RRs)[†] for age-standardized[‡] acute care hospitalization rates (ASHRs) per 100,000 population, by Aboriginal identity and cause, 2006 Census–Discharge Abstract Database study cohort, Canada excluding Quebec, 2006/2007 through 2008/2009

	First Nations living on reserve			First Nations living off reserve			Métis			Inuit in Inuit Nunangat, excluding Nunavik		
		95% confidence interval			95% confidence interval			95% confidence interval			95% confidence interval	
Cause	RR	from	to	RR	from	to	RR	from	to	RR	from	to
Pregnancy, childbirth and the puerperium[§]	2.5	2.4	2.5	1.5	1.4	1.5	1.3	1.3	1.4	2.1	2.0	2.2
Diseases of the digestive system	2.6	2.5	2.6	1.7	1.6	1.8	1.6	1.5	1.6	1.8	1.7	2.0
Injuries	3.2	3.1	3.2	2.1	2.0	2.2	1.6	1.6	1.7	2.5	2.4	2.7
Diseases of the respiratory system	3.3	3.2	3.4	2.1	2.0	2.2	1.9	1.8	1.9	2.7	2.5	2.9
Diseases of the circulatory system	1.8	1.8	1.9	1.3	1.2	1.4	1.3	1.2	1.4	1.1	1.0	1.2
Mental and behavioural disorders	3.6	3.5	3.7	2.7	2.6	2.9	2.1	2.0	2.3	3.3	3.0	3.6
Endocrine, nutritional and metabolic diseases	4.9	4.8	5.1	2.7	2.5	2.9	2.1	2.0	2.3	0.6	0.5	0.8
Diseases of the genitourinary system	1.9	1.8	1.9	1.5	1.4	1.6	1.4	1.3	1.5	1.1	1.0	1.3
Diseases of the musculoskeletal system and connective tissue	1.4	1.3	1.4	1.2	1.1	1.3	1.2	1.1	1.3	1.1	0.9	1.2

[†] reference group is non-Aboriginal population
[‡] standardized to Aboriginal population age structure based on 2006 Census
[§] females only
Notes: Data for each Aboriginal group are based on population reporting a single identity.
Source: Linked 2006 Census–2006/2007-to-2008/2009 Discharge Abstract Database.

Figure 1
Rate ratios of 2.0 or more† for age-standardized‡ acute care hospitalization rates per 100,000 population, by Aboriginal identity and cause, Canada excluding Quebec, 2006 Census-Discharge Abstract Database study cohort, 2006/2007 through 2008/2009



† reference group is non-Aboriginal population
‡ standardized to Aboriginal population age structure based on 2006 Census
Source: Linked 2006 Census–2006/2007-to-2008/2009 Discharge Abstract Database.

status of the two populations, notably, the higher prevalence of poor health,[4] chronic conditions[5,6,8,9,36,37] and unintentional injuries,[10,12,13] and the shorter life expectancy of Aboriginal people.[14-18] Elevated RRs for some causes of hospitalization could be expected, given the higher prevalence of specific chronic conditions among the Aboriginal population such as diabetes mellitus,[4,6] asthma,[8,9] and gallstones.[38,39]

Other factors may be involved in producing higher ASHRs for Aboriginal populations. These might include socioeconomic and/or underlying health determinants that, elsewhere, have included processes of colonization.[40,41] Additional adjustment or multivariate analysis to account for the role of other factors could clarify suggested associations between higher rates of hospitalization and Aboriginal identity.

Others have suggested that higher ASHRs may reflect less access to primary care services.[42] On-reserve First Nations people primarily live in rural areas. While patterns of health care use in rural versus urban Canada are due, in part, to differences in health determinants,[43] the availability of health services plays a role.[44-46]

Limitations

This study has a number of limitations that should be considered in assessing the findings.

ASHRs should not be interpreted as representing the prevalence of specific health conditions. Rather, results represent health conditions that require acute care hospitalization.

Results and conclusions pertain only to the Aboriginal identity groups analyzed in this report. People not enumerated by the 2006 Census were excluded, notably, residents of 22 Indian reserves and settlements.[47] Validation of the linked files used in this study showed lower coverage of populations in the territories and of younger age groups, characteristics pertinent to the Aboriginal population.[25] Eligibility rates for linkage to the DAD were lower among people who identified as Aboriginal, individuals of lower socio-

economic status, rural/farm residents, and residents of Nunavut and British Columbia. As a result, Aboriginal people are underrepresented, and their ASHRs are likely undercounted. In particular, a downward bias affects eligibility to link to the DAD for First Nations people on reserves in Ontario, Alberta, and British Columbia (data not shown). Comparisons between First Nations living on and off reserve should consider this bias.

What is already known on this subject?

- Because hospital administrative data do not uniformly include information about Aboriginal identity, it has not been possible to examine hospital use by Aboriginal people at the national level.
- Previous analyses have found elevated rates of acute care hospitalization in areas with higher percentages of Aboriginal people.
- Provincial studies from British Columbia, Alberta, Saskatchewan, and Manitoba that used individual-level hospital data with First Nations or Métis identifiers found hospitalization rates to generally be higher among these groups than among their non-Aboriginal counterparts or the total provincial population.

What does this study add?

- This is the first analysis of acute care hospitalization by Aboriginal group for all Canada except Quebec.
- Age-standardized hospitalization rates were higher for each group relative to non-Aboriginal people for the nine leading diagnostic chapters analysed.
- Ranking of diagnostic chapters differed slightly depending on the Aboriginal identity group.
- This study helps to fill gaps in understanding hospitalization patterns among Aboriginal people.

Another major shortcoming is that hospitalizations in Quebec were not available.

No adjustment was made for deaths of study cohort members; therefore, populations at greater risk of death within follow-up are underrepresented. Moreover, Aboriginal people have a greater risk of premature mortality than do non-Aboriginal people,[15-18] so it is possible that ASHRs for Aboriginal people are artificially low. This decreased "eligibility" for hospitalization may have created a downward bias in the compilation of hospitalization rates for Aboriginal people.

The analysis pertained only to acute care hospitalization; findings are not generalizable to other types of hospitalization such as day surgery and psychiatric services, or to health service use generally. In addition, after 2005, mental health hospitalizations in Ontario were not comprehensively reported to the DAD, but instead, to the Ontario Mental Health Reporting System. Therefore, acute care mental health hospitalizations are underreported in this study.

A cautionary note is warranted about ASHRs for "diseases of the circulatory system," which were only slightly elevated for Aboriginal people. Cardiovascular diseases have been identified as important contributors to person-years of life lost[14,15] and a growing health risk for Aboriginal people.[48,49] Nonetheless, previously reported hospitalization rates for circulatory system diseases among First Nations[2] also did not rank high.

Conclusions

Linkage of the 2006 Census and hospital administrative data makes it possible to report acute care hospitalization for all Canada except Quebec for First Nations living on and off reserve, Métis, and Inuit. For each Aboriginal identity group, the diagnoses that most frequently resulted in hospitalization were birth-related, digestive diseases, injuries, respiratory diseases, and mental and behavioural disorders. ASHRs were almost always higher for Aboriginal people—often double to three times those for non-Aboriginal people. However, the ranking of causes according to the extent to which ASHRs differed from those of the non-Aboriginal population varied by Aboriginal identity group.

This information is relevant to health policy and service delivery planning related to the health conditions that place Aboriginal people at increased risk of hospital admission. Future analyses could use the linked 2006 Census information to adjust for confounders beyond age to model associations between demographic, socioeconomic characteristics, and location of residence in order to explain differential hospitalization. ■

Acknowledgements

This study was sponsored by the First Nations and Inuit Health Branch (FNIHB), Health Canada. The authors acknowledge FNIHB for their financial support and for their input and feedback on the conception and design of this study, analysis and interpretation of the data, and review of earlier versions of the manuscript.

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Appendix

Table A
2006 Census cohort eligible for linkage to Discharge Abstract Database, by Aboriginal identity, sex, age group, rural/urban residence, and region, Canada excluding Quebec

	Total	First Nations living on reserve	First Nations living off reserve	Métis	Inuit in Inuit Nunangat, excluding Nunavik	Non-Aboriginal population
Total cohort	4,652,700	229,300	77,000	74,900	27,400	4,230,400
% of total cohort	100	5	2	2	1	91
Sex						
Female	2,368,300	113,100	40,800	37,800	13,600	2,155,800
Male	2,284,400	116,200	36,200	37,100	13,800	2,074,600
Age group						
0 to 9	549,300	50,000	15,900	12,000	6,400	462,700
10 to 19	652,400	51,500	16,400	14,700	6,600	560,700
20 to 29	594,500	33,300	11,100	11,300	4,500	532,400
30 to 39	632,300	30,300	10,900	10,500	3,700	575,000
40 to 49	766,600	28,600	10,700	11,800	3,000	710,500
50 or older	1,457,600	35,700	12,000	14,600	3,200	1,389,000
Rural/Urban residence[†]						
Rural	1,112,300	212,500	22,800	28,100	18,000	822,600
Urban	3,540,400	16,800	54,200	46,800	9,400	3,407,800
Region						
Atlantic	435,000	15,300	4,400	5,000	2,000	406,200
Ontario	2,254,500	38,700	21,500	13,700	0	2,178,400
Manitoba	263,700	50,600	9,200	14,300	0	188,400
Saskatchewan	225,200	43,400	10,800	12,000	0	157,400
Alberta	640,700	33,300	12,600	17,900	0	575,000
British Columbia	769,100	38,000	14,300	10,400	0	704,100
Territories	64,300	10,000	4,400	1,700	25,400	21,000

[†] urban areas have minimum population of 1,000 and population density of at least 400 per square kilometre; all territory outside urban areas classified as rural
Notes: Population counts rounded to nearest 100. Data for each Aboriginal group are based on population reporting a single identity.
Source: 2006 Census of Population.

Table B
Hospitalizations grouped by ICD-10 chapter codes using most responsible diagnosis

Chapter	Codes
Endocrine, nutritional and metabolic diseases	E00-E90
Mental and behavioural disorders	F00-F99
Diseases of the circulatory system	I00-I99
Diseases of the respiratory system	J00-J99
Diseases of the digestive system	K00-K93
Diseases of the genitourinary system	N00-N99
Pregnancy, childbirth and the puerperium	O00-O99
Injury, poisoning and certain other consequences of external causes	S00-T98
Diseases of the musculoskeletal system and connective tissue	M00-M99

Source: Canadian Institute for Health Information. *International Statistical Classification of Diseases and Related Health Problems, ICD-10-CA, Tenth Revision.* Ottawa: Canadian Institute for Health Information, 2006.